

September 3, 1998

IT-MC-CK05-0038
Project No. 774645

Mr. Ellis Pope
U.S. Army Corps of Engineers
Mobile District
Attn: EN-GH-P
109 Joseph Street
Mobile, Alabama 36628-0001

Contract: Contract No. DACA21-96-0018/CK005
Ft. McClellan, Alabama

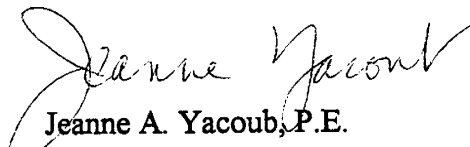
Subject: Final Site-Specific Work Plan

Dear Mr. Pope:

I am enclosing three copies of the subject final plans. This plan describes the site investigation activities for the former Transformer near Building 3798 (EBA Parcel 57Q). This final document incorporates the comments we received, and reflects our discussions on August 5-6, 1998 in Knoxville.

I have distributed copies of this document according to the distribution list indicated below. If you have questions or need further information, please contact me at (303) 793-5250.

Sincerely,


Jeanne A. Yacoub, P.E.
Project Manager

Attachments

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**Final
Site-Specific Field Sampling Plan and
Site-Specific Safety and Health Plan Attachments
Former Transformer at Building 3798, Parcel No. 57Q**

**Fort McClellan
Calhoun County, Alabama**

**Delivery Order CK004
Contract No. DACA21-96-D-0018
IT Project No. 773191**

September 1998

Revision 1

**Final
Site-Specific Field Sampling Plan Attachment
Site Investigation at the Former Transformer at
Building 3798, Parcel 57Q**

**Fort McClellan
Calhoun County, Alabama**

Prepared for:

**U.S. Army Corps of Engineers, Mobile District
109 St. Joseph Street,
Mobile, Alabama 36602**

Prepared by:

**IT Corporation
312 Directors Drive
Knoxville, Tennessee 37923**

**Delivery Order CK004
Contract No. DACA21-96-D-0018
IT Project No. 773191**

September 1998

Revision 1

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List of Acronyms

ADEM	Alabama Department of Environmental Management
CESAS	Corps of Engineers South Atlantic Savannah
CERFA	Community Environmental Response Facilitation Act
DOD	U.S. Department of Defense
DQO	data quality objective
EBS	environmental baseline survey
EPA	U.S. Environmental Protection Agency
ESE	Environmental Sciences and Engineering, Inc.
FTMC	Fort McClellan
GPS	global positioning system
IDW	investigation-derived waste
IT	IT Corporation
PCB	polychlorinated biphenyl
PCOC	potential contaminant(s) of concern
QA/QC	quality assurance/quality control
QAP	installation-wide quality assurance plan
SAP	installation-wide sampling and analysis plan
SFSP	site-specific field sampling plan
SHP	installation-wide safety and health plan
SI	site investigation
SSHP	site-specific safety and health plan
USACE	U.S. Army Corps of Engineers
WMP	site-specific waste management plan
WP	installation-wide work plan

Executive Summary

In accordance with Contract No. DACA21-96-D-0018, Delivery Order Ck005, IT Corporation (IT) will conduct a site investigation at Fort McClellan, Calhoun County, Alabama at the Former Transformer, Parcel 57(Q) to determine the presence or absence of potential site-specific chemicals. This site-specific field sampling plan (SFSP) will provide technical guidance for sampling activities at Former Transformer, Parcel 57(Q). IT will collect one surface soil and one subsurface soil sample at this site.

IT will collect samples for polychlorinated biphenyls. Results from this analysis will be compared with site-specific screening levels specified in the installation-wide work plan (WP), and regulatory agency guidelines.

This site-specific field sampling plan (SFSP) attachment to the installation-wide sampling and analysis plan (SAP) (IT Corporation [IT], 1998a) for the Site Investigation at the Former Transformer at Building 3798 (Parcel 57Q) at Fort McClellan (FTMC), Calhoun County, Alabama, will be used in conjunction with the site-specific safety and health plan (SSHP), and the installation-wide work plan (IT, 1998b), waste management plan, and SAP. The SAP includes the installation-wide safety and health plan and quality assurance plan. Site-specific hazard analyses are included in the SSHP.

An electrical transformer was previously attached to a power pole adjacent to Building 3798. The site is near Summerall Gate. A site investigation is being conducted to determine the presence or absence of contamination at the site.

1.0 Project Description

1.1 Introduction

This site-specific field sampling plan (SFSP) attachment to the installation-wide sampling and analysis plan (SAP) (IT Corporation [IT], 1998a) for Fort McClellan (FTMC), Calhoun County, Alabama, has been prepared to provide technical guidance and rationale for sample collection and analysis at the Former Transformer at Building 3798, Parcel No. 57Q (Figure 1-1). IT will collect samples at this site as part of a site investigation (SI) effort leading to Base closure and realignment. The results of this effort will determine whether or not there are chemicals at this site in concentrations high enough to warrant further remedial action.

The SFSP will be used in conjunction with the site-specific safety and health plan (SSHP) developed for the Former Transformer site, and the installation-wide work plan (WP) (IT, 1998b), waste management plan (WMP), and SAP, which includes the installation-wide safety and health plan (SHP) and quality assurance plan (QAP).

1.2 Site Description

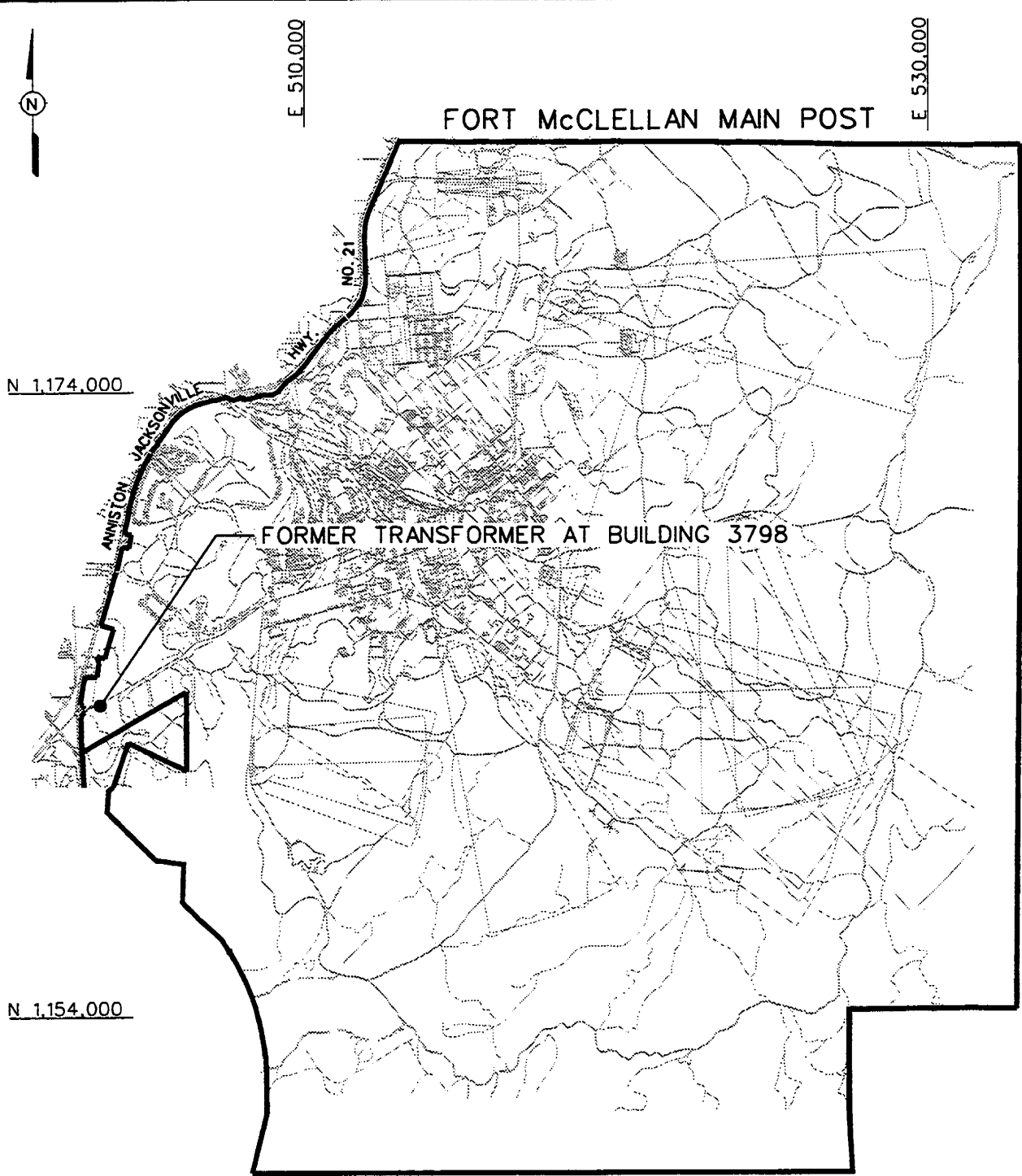
An electrical transformer was previously attached to a power pole adjacent to Building 3798 (Figure 1-2). This site is located near Summerall Gate, to the southeast of the road. The closest stream/drainage is approximately 700 feet from the Former Transformer site, east and west.

The soils at this site are classified as the Anniston and Allen gravelly loams, 6 to 10 percent slopes, eroded (AcB2) category. This unit consists of friable soils that have developed in old alluvium washed from sandstone and shale onto foot slopes and along the base of mountains. The texture of subsoil ranges from light gray loam to clay or silty clay loam. The alluvium ranges in thickness from 2 to more than 8 feet, and is underlain by highly fractured limestone and shale. Infiltration and runoff are medium, permeability is moderate, and the capacity for available moisture is high. Severely eroded places may be common on the surface, and there are a few shallow gullies. Depth to water is more than 20 feet and bedrock can be from 2 to more than 10 feet (U.S. Department of Agriculture, 1961).


1.3 Scope of Work

The scope of work for activities associated with the SI at the Former Transformer site as specified in the statement of work (U.S. Army Corps of Engineers [USACE], 1997) includes the following tasks:

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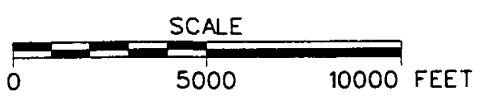


FIGURE 1-1
SITE LOCATION MAP
FORMER TRANSFORMER AT
BUILDING 3798
PARCEL 57(Q)

U. S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018



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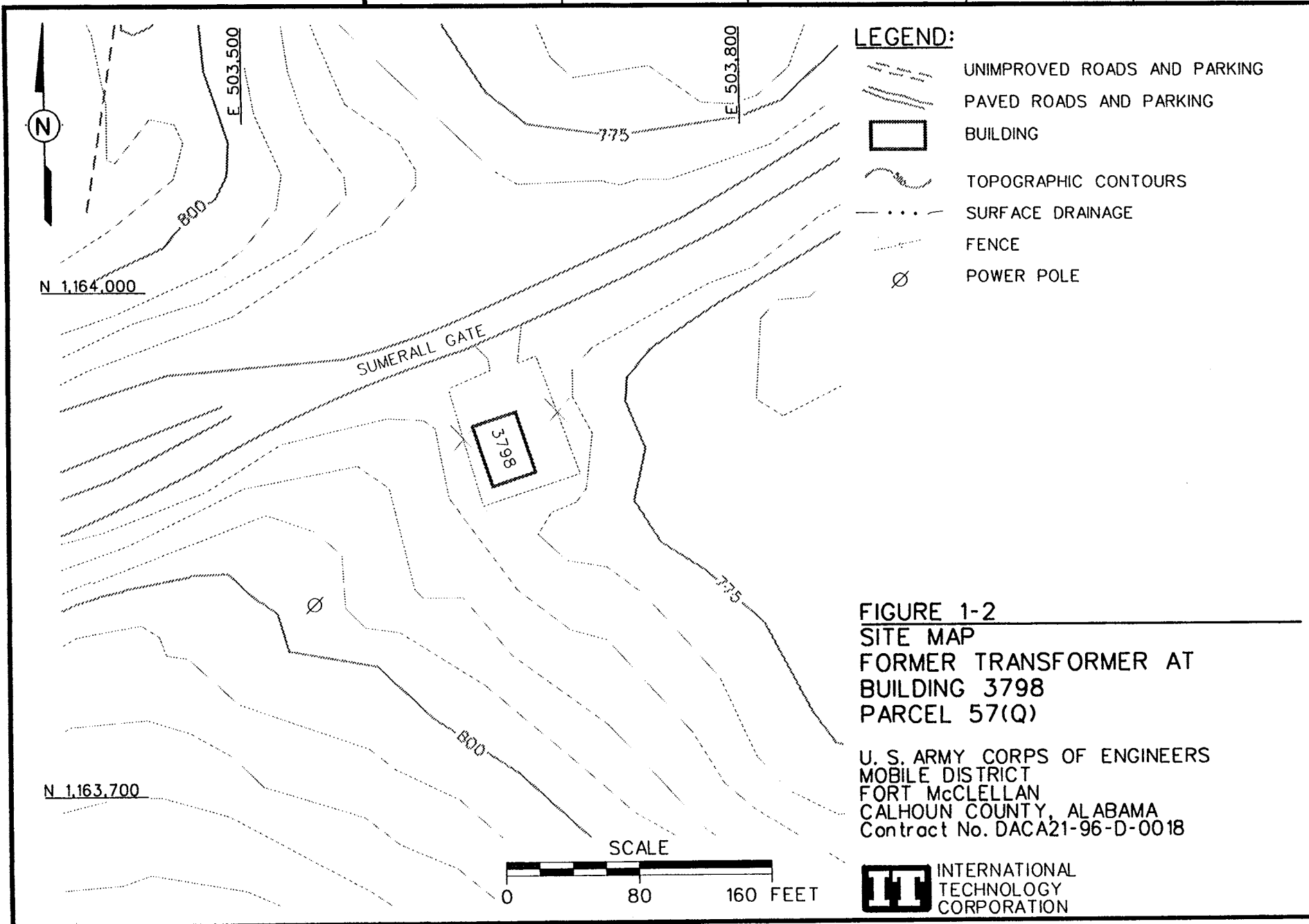
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PROJ. MGR.: J. YACOB

PROJ. NO.: 773191



- Develop the SFSP attachment.
- Develop the SSHP attachment.
- Collect one soil sample to determine whether chemicals of potential concern are present at the Former Transformer site, and to provide data to determine future planned corrective measures and closure activities.

Upon completion of the field activities and sample analyses, draft and final reports will be prepared in accordance with current U.S. Army, U.S. Environmental Protection Agency (EPA) Region IV, and Alabama Department of Environmental Management (ADEM) requirements.

2.0 Summary of Existing Environmental Studies

Environmental Science and Engineering, Inc. (ESE) conducted an environmental baseline survey (EBS) to document current environmental conditions of all FTMC property (ESE, 1998). The study identified sites that, based on available information, have no history of contamination and comply with U.S. Department of Defense (DOD) guidance on fast track cleanup at closing installations. The EBS also provides a baseline picture of FTMC properties by identifying and categorizing the properties by seven criteria:

- Areas where no storage, release or disposal (including migration) has occurred.
- Areas where only storage has occurred.
- Areas of contamination below action levels.
- Areas where all necessary remedial actions have been taken.
- Areas of known contamination with removal and/or remedial action under way.
- Areas of known contamination where required response actions have not been taken.
- Areas that are not evaluated or require further evaluation.

The EBS was conducted in accordance with the Community Environmental Response Facilitation Act (CERFA) (CERFA-Public Law 102-426) protocols and DOD policy regarding contamination assessment. Records searches and reviews were performed on all reasonably available documents from FTMC, ADEM, EPA Region IV, and Calhoun County, as well as a database search of Comprehensive Environmental Response, Compensation, and Recovery Act-regulated substances, petroleum products, and Resource Conservation and Recovery Act-regulated facilities. Available historic maps and aerial photographs were reviewed to document historic land uses. Personal and telephone interviews of past and present FTMC employees and military personnel were conducted. In addition, visual site inspections were conducted to verify conditions of specific property parcels.

Previous studies have not been conducted at this site.

3.0 Site-Specific Data Quality Objectives

3.1 Overview

The data quality objective (DQO) process is followed to evaluate data requirements and to support the decision-making process associated with future action at the Former Transformer site. This section incorporates the components of the DQO process described in the EPA publication *Data Quality Objectives for Superfund* (EPA, 1993); the DQO process as applied to this site is described in more detail in Sections 3.2 and 4.3 of the WP. Table 3-1 provides a summary of the factors used to determine the sampling quantity and procedures necessary to meet the objectives of the SI and to establish a basis for future action at this site. This SFSP, along with the necessary companion documents, has been designed to provide the regulatory agencies with sufficient detail to reach a determination of the adequacy of the scope of work. The program has also been designed to provide defensible information required to confirm or deny the existence and nature of residual chemical contamination at the site.

The samples will be analyzed for the parameters listed in Table 3-1 using EPA SW-846 Update III methods as presented in the QAP. Data will be reported and validated in accordance with Corps of Engineers South Atlantic Savannah (CESAS) Level B criteria (USACE, 1994) and the stipulated requirements for the generation of definitive data (Section 3.1.2 of the QAP).

Soil will be sampled and analyzed to meet the objectives of the SI at the Former Transformer site. Quality assurance/quality control (QA/QC) samples will be collected for all sample types as described in Chapter 4.0 of this SFSP. All samples will be analyzed by EPA-approved SW-846 Update III methods, and will comply with EPA definitive data requirements.

3.2 Data Users and Available Data

The intended data users and available data related to the SI at the Former Transformer site presented in Table 3-1 have been considered in formulation of a site-specific conceptual model. This conceptual model was developed to support the development of this SFSP, which is necessary to meet the objectives of these activities and to establish a basis for future action at the site. The data users for information generated during field activities are primarily the EPA, USACE, ADEM, FTMC, and the USACE supporting contractors. This SFSP, along with the necessary companion documents, has been designed to provide the regulatory agencies with sufficient detail to reach a determination as to the adequacy of the scope of work. The program

Table 3-1

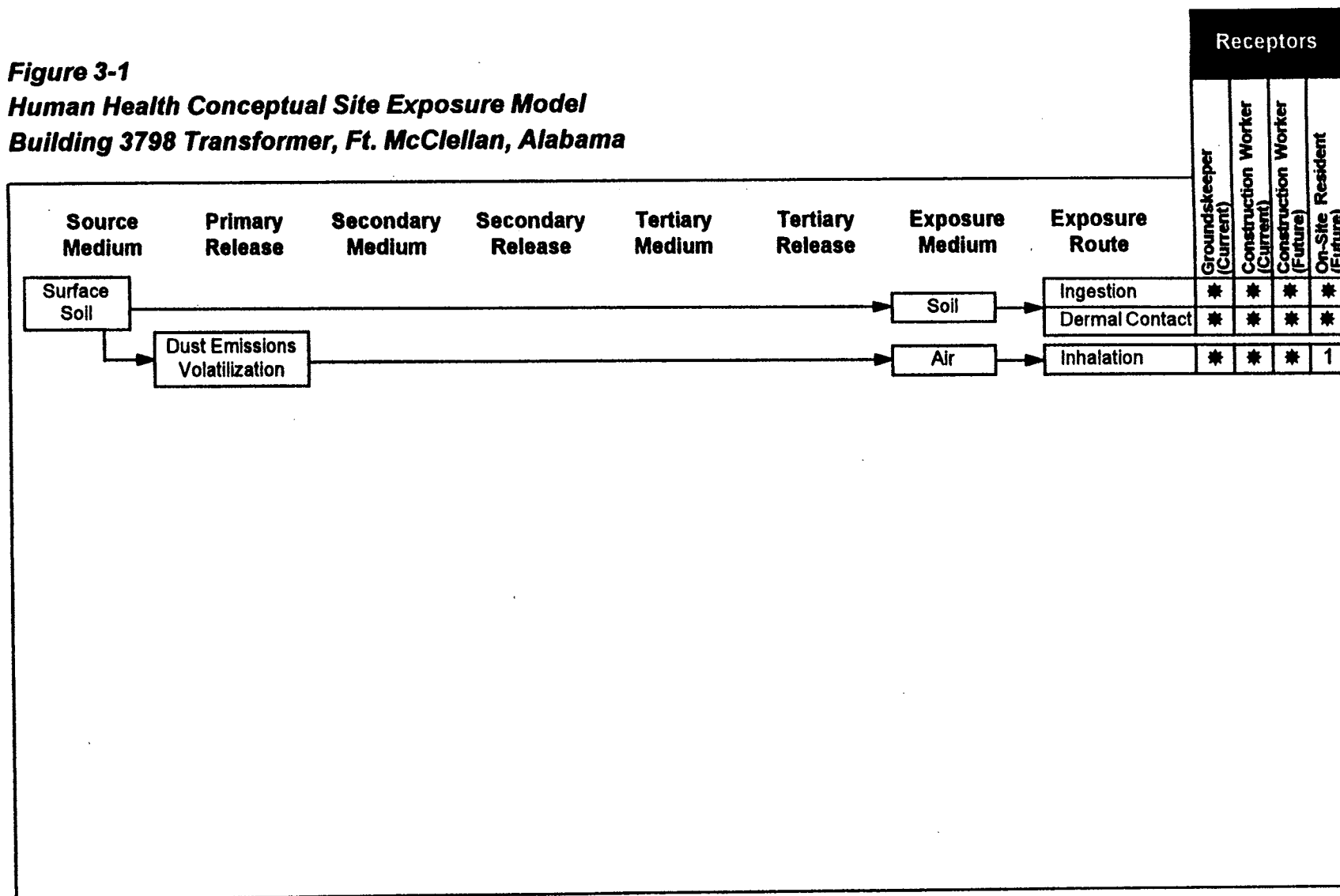
**Summary of Data Quality Objectives
Site Investigation, Former Transformer at Building 3798 (57Q)
Fort McClellan, Calhoun County, Alabama**

Potential Data Users	Available Data	Conceptual Site Model	Media of Concern	Data Uses and Objectives	Data Types	Analytical Level	Data Quantity
EPA ADEM USACE DOD IT Corporation Other Contractors Possible future land users	None	<u>Contaminant Source</u> Transformer <u>Migration Pathways</u> Dust emissions Surface soil <u>Potential Receptors</u> Groundskeeper Construction worker Future residents <u>PSSC</u> PCBs	Surface soil	SI to determine whether chemicals of potential concern are present in the site media Definitive quality data for future decision making	<u>Surface soil</u> PCB	Definitive + CESAS Level B	1 +QC

ADEM - Alabama Department of Environmental Management.
 CESAS - Civil Engineering South Atlantic Savannah.
 DOD - U.S. Department of Defense.
 EPA - U.S. Environmental Protection Agency.
 PCB - Polychlorinated biphenyl.
 PSSC - Potential site-specific chemical.

QC - Quality control.
 SI - Site investigation.
 SVOC - Semivolatile organic compound.
 USACE - U.S. Army Corps of Engineers.

Figure 3-1
Human Health Conceptual Site Exposure Model
Building 3798 Transformer, Ft. McClellan, Alabama



* = Complete exposure pathway evaluated in baseline risk assessment

1 = Although theoretically complete, this pathway is judged to be insignificant (see Section 3.1.2).

has also been designed to provide the level of defensible information required to confirm or deny the existence and nature of residual chemical contamination in site media.

3.3 Conceptual Site Model

The following factors were considered in defining the conceptual site model for the Former Transformer site:

- Source medium
- Primary release
- Exposure medium
- Exposure route
- Potential receptors.

Polychlorinated biphenyls (PCB) are the potential site-specific chemicals (PSSC) at the Former Transformer site; possible release was from an electrical transformer located on a pole adjacent to Building 3798. The migration pathways include dust emissions and surface soil. The most likely receptors for contaminants at the Former Transformer site are groundskeeper, construction workers, and future residents (Figure 3-1).

3.4 Decision-Making Process, Data Uses, and Needs

The decision-making process consists of a seven-step process that is presented in detail in Sections 3.2 and 4.3 of the WP and will be followed during the SI at the Former Transformer site. Data uses and needs are summarized in Table 3-1.

3.4.1 Risk Evaluation

Confirmation of the presence or absence of PCBs at the Former Transformer site will be based upon a comparison of detected site chemical concentrations with site-specific screening levels and background concentrations developed in the WP. EPA definitive data with CESAS Level B data packages will be used to achieve detection limits sufficient to determine whether or not the established guidance criteria are exceeded in site media. Definitive data will be adequate for confirming contamination for supporting a feasibility study and risk assessment.

3.4.2 Data Types and Quality

Surface soil will be sampled and analyzed in order to meet the objectives of the SI at the Former Transformer site. Quality assurance/quality control (QA/QC) samples will be collected for all sample types as described in Chapter 4.0 of this SFSP. Samples will be analyzed by EPA-approved SW-846 Update III methods, where available, comply with EPA definitive data

requirements, and will be summarized in CESAS Level B data packages. In addition to meeting the quality needs of this SI, data analyzed at this level of quality are appropriate for all phases of site characterization, remedial investigation, and risk assessment.

3.4.3 Precision, Accuracy, and Completeness

Laboratory requirements of precision, accuracy, and completeness for this SI are provided in Chapter 9.0 of the QAP.

4.0 Field Activities

4.1 Utility Clearances

Prior to performing any sampling, a digging permit will be obtained for the location of the surface soil sample to be collected, using the procedure as specified in the SAP (IT, 1998a). The site manager will mark the proposed location with a stake, coordinate with the installation to clear the proposed location for utilities, and obtain a dig permit. Once cleared, the stake will be labeled as cleared.

4.2 Environmental Sampling

The environmental sampling program during the SI at the Former Transformer site will consist of the collection of one surface soil sample for chemical analysis.

4.2.1 Surface Soil Sampling

4.2.1.1 Sample Locations and Rationale

The surface soil sample will be collected from the upper 1 foot of soil at the sampling location to determine if PCB concentrations in the soil are above guidance levels (greater than 50 parts per million). The potential for PCB concentrations in the soil is based on the former presence of an electrical transformer attached to the pole at this site. The exact surface soil sampling location will be determined in the field by the on-site geologist based on actual field conditions such as soil staining, soil texture, and stressed vegetation. The proposed tentative sampling location is shown in Figure 4-1.

4.2.1.2 Sample Collection

The surface soil sample to be collected at the Former Transformer site, and the designated sample number, along with required QA/QC sample quantities, are listed in Table 4-1. The surface soil sample will be collected from the upper 1 foot of soil with stainless-steel sampling equipment into a stainless-steel bowl. Methodology for collecting a surface soil sample is outlined in Section 4.9.1.1, in the SAP (IT, 1998a).

4.3 Decontamination Requirements

Decontamination will be performed on sampling and nonsampling equipment primarily to ensure that contaminants are not introduced into samples from location to location. Decontamination of sampling equipment will be performed in accordance with the requirements presented in Section

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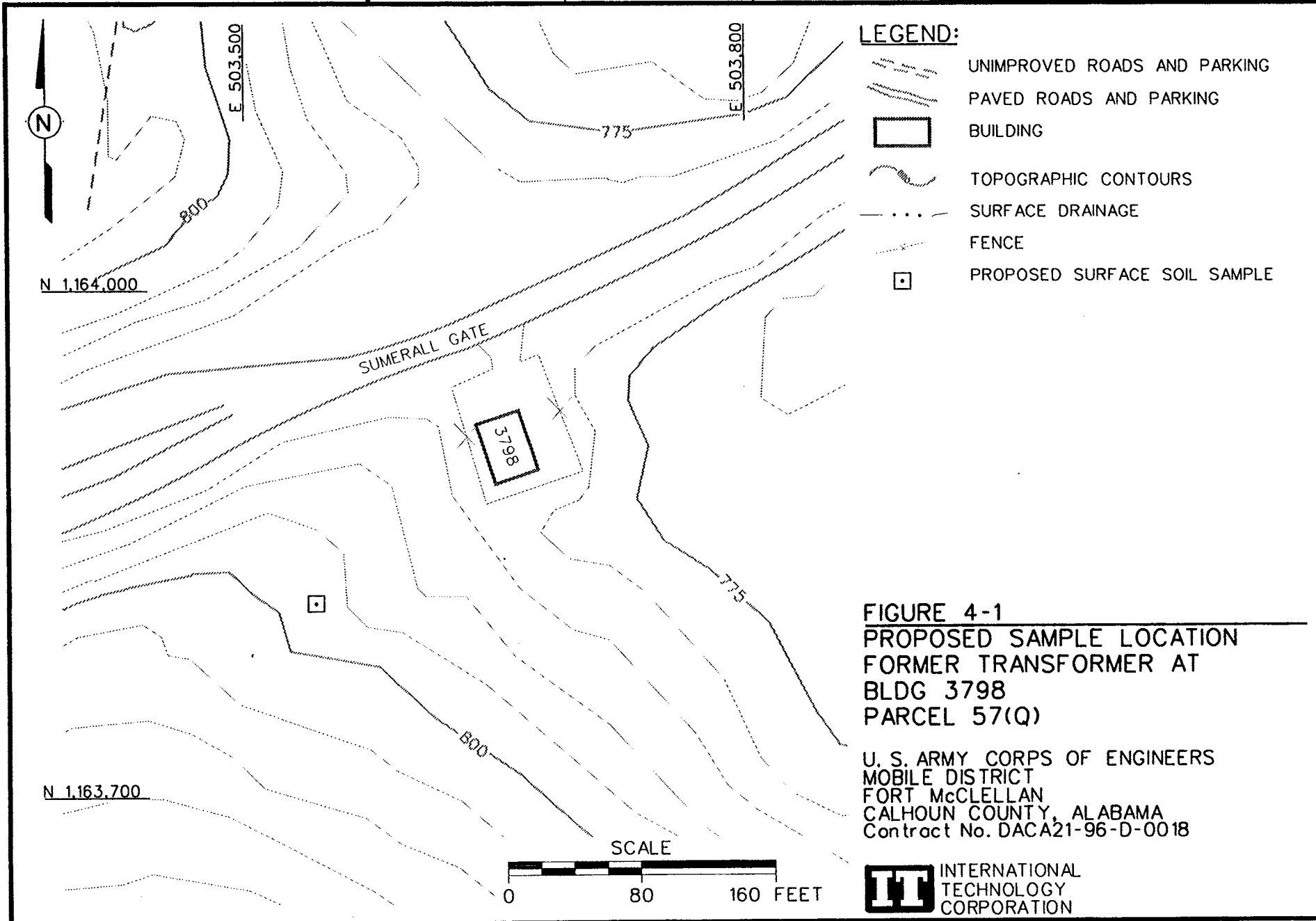


Table 4-1

**Surface Soil Sample Designation and QA/QC Sample Quantities
Former Transformer at Building 3798 (57Q)
Fort McClellan, Calhoun County, Alabama**

Sample Location	Sample Designation	Sample Depth (ft)	QA/QC Samples			Analytical Suite
			Field Duplicates	Field Splits	MS/MSD	
FTB-57Q-GP01	FTB-57Q-GP01-SS-KA-0001-REG	0-1	FTB-57Q-GP01-SS-KA-0002-FD	FTB-57Q-GP01-SS-KA-0003-FS	FTB-57Q-GP01-SS-KA-0001-MS FTB-57Q-GP01-SS-KA-0001-MSD	Chlorinated Pesticides, PCBs

MS/MSD - Matrix spike/matrix spike duplicate.

QA/QC - Quality assurance/quality control.

SVOC - Semivolatile organic compound.

TAL - Target analyte list.

TCL - Target compound list.

VOC - Volatile organic compound.

4.10.1.1 and 4.10.1.2 of the SAP. Decontamination of nonsampling equipment will be performed in accordance with the requirements presented in Section 4.9.1.2 of the SAP.

4.4 Surveying of Sampling Locations

Sampling locations will be marked with pin flags, stakes, and/or flagging and will be surveyed using either global positioning system (GPS) or conventional civil survey techniques, as necessary to obtain the required level of accuracy. Horizontal coordinates will be referenced to the Alabama State Plane coordinate system, 1983 North American Datum (NAD83). Elevations will be referenced to the National Geodetic Vertical Datum of 1929 or the North American Vertical Datum of 1988 (soon to be established on site).

Horizontal coordinates for the soil location will be recorded using a GPS to provide accuracy within 1 meter.

Procedures to be used for GPS surveying are described in Section 4.3 of the SAP. Conventional land survey requirements are presented in Section 4.19 of the SAP.

4.5 Analytical Program

The sample collected at the location specified in Chapter 4.0 will be analyzed for PCBs. The specific chemical to be analyzed is decided by the PSSC, which are based on the history of the site, and EPA, ADEM, FTMC, and USACE requirements. The sample will be analyzed using EPA SW-846 Update III methods as presented in Table 4-2 and in the QAP. Data will be reported and evaluated in accordance with CESAS Level B criteria (USACE, 1994) and the stipulated requirements for the generation of definitive data (Section 3.1.2 of the QAP).

The field sampling coordinator will provide the required sample bottles and sampling equipment on a daily basis during the sampling process at each site. Table 5-1 in the QAP will be used as the guide for the required bottles.

4.6 Sample Preservation, Packaging, and Shipping

Sample preservation, packaging, and shipping will follow the procedures specified in Section 4.13.2 of the SAP. Completed analysis request/chain of custody records will be secured and included with each shipment of coolers to:

Table 4-2

**Analytical Samples, Former Transformer at Building 3798 (57Q)
Fort McClellan, Calhoun County, Alabama**

Parameters	Method	Sample Matrix	TAT Needed	Field Samples			QA/QC Samples					Quanterra	ACE Lab
				No. of Sample Points	No. of Events	No. of Field Samples	Field Dups (10%)	Field Splits w/ ACE Lab (10%)	MS/MSD (5%)	Trip Blank (1/event)	Eq. Rinse ^a (1/event/matrix)	Total No. Analysis	Total No. Analysis
Site 57Q - Transformer: 1 Surface Soil													
Chlorinated Pesticides	8081A	soil	normal	1	1	1	1	1	1		1	5	1
PCBs	8082	soil	normal	1	1	1	1	1	1		1	5	1

Ship soil and water samples to:

Quanterra Environmental Services
5815 Middlebrook Pike
Knoxville, Tennessee 37921
Attn: John Reynolds
Tel: 423-588-6401
Fax: 423-584-4315

USACE Laboratory split samples
are shipped to:

USACE South Atlantic Division Laboratory
Attn: Sample Receiving
611 South Cobb Drive
Marietta, Georgia 30060-3112
Tel: 770-919-5270

^a Equipment rinse samples will be collected per the task work plan on samples that are collected using nondisposable or nondedicated equipment.

MS/MSD - Matrix spike/matrix spike duplicate.

PCB - Polychlorinated biphenyl.

QA/QC - Quality assurance/quality control.

Sample Receiving
Quanterra Environmental Services
5815 Middlebrook Pike
Knoxville, Tennessee 37921
Telephone: (423) 588-6401

USACE laboratory split samples are shipped to:

USACE South Atlantic Division Laboratory
Attn: Sample Receiving
611 South Cobb Drive
Marietta, Georgia 30060-3112
Telephone: (770) 919-5270.

4.7 Investigation-Derived Waste Management

Investigation-derived waste (IDW) will be managed and disposed of as outlined in Appendix D of the SAP (IT, 1998a). The IDW expected to be generated from the field sampling at FTMC will consist of decontamination fluids, spent sampling materials, and personal protective equipment. IDW will be stored inside the fenced area surrounding Buildings 335 and 336 while awaiting final disposal.

5.0 *Project Schedule*

The project schedule for the SI activities will be provided by the project manager to the base closure team on a monthly basis.

6.0 References

Environmental Science and Engineering Inc. (ESE), 1998, *Final Environmental Baseline Survey, Fort McClellan, Alabama*, prepared for U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland, January.

IT Corporation (IT), 1998a, *Final Installation-Wide Sampling and Analysis Plan, Fort McClellan, Calhoun County, Alabama*, October.

IT Corporation (IT), 1998b, *Final Installation-Wide Work Plan, Fort McClellan, Calhoun County, Alabama*, October.

U.S. Army Corps of Engineers (USACE), 1997, *Site Investigation, Fort McClellan, Alabama, Scope of Work*, January.

U.S. Army Corps of Engineers (USACE), 1994, *Requirements for the Preparation of Sampling and Analysis Plans*, Engineer Manual EM 200-1-3, September 1.

U.S. Department of Agriculture, 1961, *Soil Survey, Calhoun County, Alabama*, USDA Soil Conservation Service in cooperation with Alabama Department of Agriculture and Industries, Alabama Agricultural Experiment Station, Series 1958, No. 9, September.

U.S. Environmental Protection Agency (EPA), 1993, *Data Quality Objectives Process for Superfund, Interim Final Guidance*, EPA 540-R-93-071, September.

**Site-Specific Safety and Health Plan Attachment
Site Investigation at the
Former Transformer at Building 3798, Parcel No. 57Q
Fort McClellan
Calhoun County, Alabama
EPA ID No. AL7 210 020 562**

Prepared for:

**U.S. Army Corps of Engineers, Mobile District
109 St. Joseph Street
Mobile, Alabama 36602**

Prepared by:

**IT Corporation
312 Directors Drive
Knoxville, Tennessee 37923**

**Delivery Order CK004
Contract No. DACA21-96-D-0018
IT Project No. 773191**

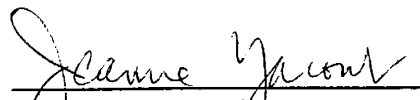
September 1998

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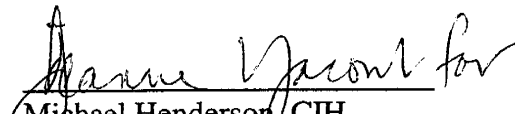
This Site-Specific Safety and Health Plan must be used in conjunction with the Installation-Wide Safety and Health Plan, Fort McClellan, Alabama.

Site-Specific Safety and Health Plan Attachment Approval
Fort McClellan, Calhoun County, Alabama

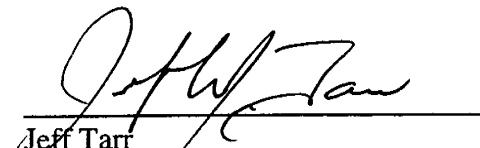
I have read and approve this site-specific safety and health plan attachment for the Former Transformer at Building 3798, Parcel No. 57Q at Fort McClellan, Alabama, with respect to project hazards, regulatory requirements, and IT Corporation procedures.


Jeanne Yacoub, PE
Project Manager

9/3/98
Date


Michael Henderson, CIH
Health & Safety Manager

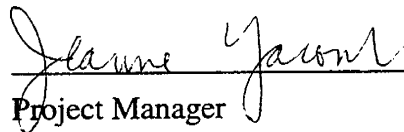
9/3/98
Date


Jeff Tarr
Site Coordinator

9/3/98
Date

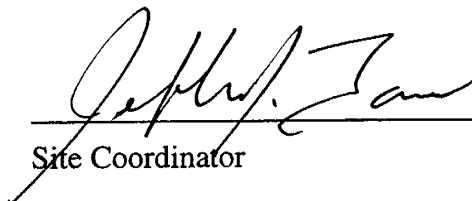
Acknowledgements

The final approved version of this site-specific safety and health plan (SSHP) attachment for the Former Transformer at Building 3798, Parcel No. 57Q at Fort McClellan, Alabama, has been provided to the site coordinator. I acknowledge my responsibility to provide the site coordinator with the equipment, materials, and qualified personnel to implement fully all safety requirements in this SSHP attachment. I will formally review this plan with the health and safety staff every 6 months until project completion.


Project Manager

9/3/98
Date

I acknowledge receipt of this SSHP attachment from the project manager, and that it is my responsibility to explain its contents to all site personnel and cause these requirements to be fully implemented. Any change in conditions, scope of work, or other change that might affect worker safety requires me to notify the project manager and/or the health and safety manager.


Site Coordinator

9/3/98
Date

Safety and Health Plan Acknowledgement Form

I have been informed of, and will abide by the procedures set forth in, this site-specific safety and health plan attachment for the activities at the Former Transformer at Building 3798, Parcel No. 57Q at Fort McClellan, Calhoun County, Alabama.

DateThis image shows a full page of blank, lined paper. It features approximately 20 horizontal black lines spaced evenly across the page, typical of notebook paper. The lines are thin and extend from the left edge to the right edge. There is no handwriting or other markings on the page.

Fort McClellan Gate Hours

GATE 1	0600 - 2000 7 days a week. 0600 - 0800 One-way in-bound traffic only (westbound). Monday through Friday, except holidays. 1500 - 1800 One-way out-bound traffic only (eastbound). Monday through Friday, except holidays.
GATE 2	0600 - 0830 Monday through Friday except holidays. 1500 - 1800 Monday through Friday except holidays. Closed on weekends and holidays.
GATE 3	Gate 3 Road. Open 24 hours daily, 7 days a week.
GATE 5	Gate 5 Road. Open 24 hours daily, 7 days a week. Closed on weekends during deer season.
Summeral Gate	Summeral Road. 0500 - 2100, 7 days a week. Closed weekends and holidays.
Baltzell Gate	Baltzell Road. Open 24 hours daily, 7 days a week.
Galloway Gate	Galloway Road. 0500 - 2100, 7 days a week.

Fort McClellan Project Emergency Contacts

Fire Department (on post)Ext. 17
Fire Department (off post)..... (205) 820-1117
Ambulance (on post)Ext. 12
Ambulance (off post) (205) 848-2315
Military Police (on post)..... Ext. 5-3821
Military Police (off post)..... (205) 848-5555
Regional Medical Center..... (205) 235-5121
Chemical Agent EmergenciesExt. 17
UXO Emergencies.....Ext. 17
UXO Nonemergencies/Reporting Only (Ronald Levy) (205) 848-3758
National Response Center (800) 424-8802
Poison Control Center (800) 462-0800
EPA Region IV (404) 562-8725
Ronald Levy, Chief, FTMC Environmental Management (205) 848-3758
Ellis Pope, U.S. Army Corps of Engineers (334) 690-3077
Jeanne Yacoub, IT Project Manager (423) 690-3211
Michael Henderson, IT H&S Manager (423) 690-3211
Dr. Elaine Theriault, IT Occupational Physician (800) 229-3674

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List of Acronyms

FTMC	Fort McClellan
PPE	personal protective equipment
SHP	installation-wide safety and health plan
SSHP	site-specific safety and health plan

1.0 Site Work Plan Summary

Project Objective. The objective of this investigation at Fort McClellan (FTMC), Calhoun County, Alabama is to collect and analyze samples from the Former Transformer at Building 3798, Parcel No. 57Q and compute the site relative risk.

Project Tasks

- Collect one soil sample.

Personnel Requirements. Up to 5 employees.

Note: All personnel on this site shall have received training, informational programs, and medical surveillance as outlined in the installation-wide safety and health plan (SHP) for site investigations at FTMC, and be familiar with the requirements of this site-specific SHP (SSHP). This SSHP must be used in conjunction with the SHP, Fort McClellan, Alabama.

2.0 Site Characterization and Analysis

2.1 Anticipated Hazards

The activity hazard analysis in Chapter 5.0 contains project-specific practices utilized to reduce or eliminate anticipated site hazards. The activity hazard analysis indicates specific chemical and physical hazards that may be present and encountered during each task from on-site operations. Below each task is a list of hazards and specific actions that will be taken to control the respective hazards. These control measures may include work practice controls, engineering controls, and/or use of appropriate personal protective equipment (PPE).

The anticipated hazards are a result of an electrical transformer that was previously attached to a power pole adjacent to Building 3798.

Table 2-1 contains the toxicological and physiological properties of chemicals anticipated or to be used at the Former Transformer at Building 3798.

2.2 General Site Information

Location of Site. The Former Transformer at Building 3798 is located near Summerall Gate, to the southeast of the road.

Duration of Planned Employee Activity. Employee activity duration is 1 week.

Site Topography. Site elevation is approximately 820 feet with ground slope to the west, northwest.

Pathways for Hazardous Substance Dispersion. Possible pathways for hazardous substances in the area are groundwater, surface water, soils, and sediment.

Table 2-1

**Toxicological and Physical Properties of Chemicals
Former Tranformer at Building 3798, Parcel 57Q
Fort McClellan, Calhoun County, Alabama**

(Page 1 of 4)

Substance [CAS]	IP ^a (eV)	Odor Threshold (ppm)	Route ^b	Symptoms of Exposure	Treatment	TWA ^c	STEL ^d	Source ^e	IDLH (NIOSH) ^f
Acetone [67-64-1]	9.7	13-100	Inh Ing Con	Irritated eyes, nose, and throat; headache, dizziness; dermatitis.	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	750 ppm 750 ppm 250 ppm	1,000 ppm 1,000 ppm	PEL TLV REL	20,000 ppm
Chlorodiphenyl	?	NA	Inh Ing Con Abs	Irritated eyes, chloracne, liver damage, reproductive effects.	Eye: Irrigate immediately Skin: Soap wash promptly Breath: Respiratory support Swallow: Immediate medical attention	0.5 mg/m ³ skin 0.5 mg/m ³ skin 0.001 mg/m ³ (Ca)		PEL TLV REL	5 mg/m ³
n-Hexane [110-54-3]	10.18	65-248	Inh Ing Con	Lightheadedness; nausea, headache; numbness of the extremities, muscular weakness; irritation of the eyes and nose; dermatitis; chemical pneumonia; giddiness.	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	50 ppm 50 ppm 50 ppm		PEL TLV REL	5,000 ppm
Hydrogen chloride (hydrochloric acid) [74-90-8]	12.74	0.255-10.6	Inh Ing Con	Inflamed nose, throat, larynx; cough, burns throat, choking; burns eyes, skin; dermatitis; in animals; laryngeal spasm; pulmonary edema.	Eye: Irrigate immediately Skin: Water flush immediately Breath: Respiratory support Swallow: Immediate medical attention		C5 ppm C5 ppm C5 ppm	PEL TLV REL	100 ppm

Table 2-1

**Toxicological and Physical Properties of Chemicals
Former Tranformer at Building 3798, Parcel 57Q
Fort McClellan, Calhoun County, Alabama**

(Page 2 of 4)

Substance [CAS]	IP ^a (eV)	Odor Threshold (ppm)	Route ^b	Symptoms of Exposure	Treatment	TWA ^c	STEL ^d	Source ^e	IDLH (NIOSH) ^f
Isopropyl alcohol (isopropanol) [67-63-0]	10.16	43-200	Inh Ing Con	Mild irritation of the eyes, nose, and throat; drowsi- ness, dizziness, headache; dry, cracked skin.	Eye: Irrigate immediately Skin: Water flush Breath: Respiratory support Swallow: Immediate medical attention	400 ppm 400 ppm 400 ppm	500 ppm 500 ppm 500 ppm	PEL TLV REL	12,000 ppm
Methanol	10.85	4.2-5960	Inh Abs Ing Con	Irritated eyes, headache, drowsiness, lightheadedness, nausea, vomiting, disturbance in vision, blindness.	Eye: Irrigate immediately Skin: Water flush promptly Breath: Fresh air Swallow: Immediate medical attention		200 ppm (skin) 200 ppm (skin) 200 ppm	PEL TLV REL	25,000 ppm
Methylene chloride (dichloromethane) [75-09-2]	11.32	?	Inh Ing Con	Fatigue, weakness, sleepi- ness, lightheadedness; numbness and tingling in limbs; nausea; Irritated eyes and skin.	Eye: Irrigate immediately Skin: Soap wash promptly Breath: Respiratory support Swallow: Immediate medical attention	500 ppm 50 ppm	C1,000 ppm; C2,000 mg/m ³ (5 min in 2 hrs)	PEL TLV REL	Ca (5,000 ppm)
Methyl ethyl ketone [78-93-3]	9.54	2-85	Inh Ing Con	Irritated eyes and nose; headache, dizziness; vomiting.	Eye: Irrigate immediately Skin: Water flush promptly Breath: Fresh air Swallow: Immediate medical attention	200 ppm 200 ppm 200 ppm	300 ppm 300 ppm 300 ppm	PEL TLV REL	3,000 ppm
Nitric acid [7697-37-2]	11.95	0.3-1	Inh Ing Con	Irritated eyes, mucous membranes, and skin; delayed pulmonary edema, pneumonitis, bronchitis; dental erosion.	Eye: Irrigate immediately Skin: Water flush promptly Breath: Respiratory support Swallow: Immediate medical attention	2 ppm 2 ppm 2 ppm	4 ppm 4 ppm 4 ppm	PEL TLV REL	100 ppm
Polychlorinated biphenyls (see Chlorodiphenyl)									

Table 2-1

**Toxicological and Physical Properties of Chemicals
Former Tranformer at Building 3798, Parcel 57Q
Fort McClellan, Calhoun County, Alabama**

(Page 3 of 4)

Substance [CAS]	IP ^a (eV)	Odor Threshold (ppm)	Route ^b	Symptoms of Exposure	Treatment	TWA ^c	STEL ^d	Source ^e	IDLH (NIOSH) ^f
Portland cement			Inh	Fine gray powder that can be irritating if inhaled or in eyes.	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention		10 mg/m ³ 10 mg/m ³ /total dust 5 mg/m ³ respirable fraction	TLV PEL/REL	
Sodium hydroxide [1310-73-2]	NA	NA	Inh Ing Con	Irritated nose; pneumonitis; burns eyes, and skin; temporary loss of hair.	Eye: Irrigate immediately Skin: Water flush immediately Breath: Respiratory support Swallow: Immediate medical attention		C2 mg/m ³ C2 mg/m ³ C2 mg/m ³	PEL TLV REL	250 mg/m ³
Sulfuric acid [7664-93-9]	?	0.15	Inh Ing Con	Irritated eyes, nose, and throat; pulmonary edema, bronchitis; emphysema; conjunctivitis; stomatitis; dental erosion; tracheobronchitis; skin and eye burns; dermatitis.	Eye: Irrigate immediately Skin: Water flush immediately Breath: Respiratory support Swallow: Immediate medical attention	1 mg/m ³ 1 mg/m ³ 1 mg/m ³	3 mg/m ³	PEL TLV REL	80 mg/m ³

^aIP = Ionization potential (electron volts).^bRoute = Inh, Inhalation; Abs, Skin absorption; Ing, Ingestion; Con, Skin and/or eye contact.^cTWA = Time-weighted average. The TWA concentration for a normal work day (usually 8 or 10 hours) and a 40-hour work week, to which nearly all workers may be repeatedly exposed, day after day without adverse effect.^dSTEL = Short-term exposure limit. A 15-minute TWA exposure that should not be exceeded at any time during a workday, even if the TWA is not exceeded.^ePEL = Occupational Safety and Health Administration (OSHA) permissible exposure limit (29 CFR 1910.1000, Table Z).

AEL = Airborne Exposure Limit.

TLV = American Conference of Governmental Industrial Hygiene (ACGIH) threshold limit value—TWA.

REL = National Institute for Occupational Safety and Health (NIOSH) recommended exposure limit.

^fIDLH (NIOSH)—Immediately dangerous to life or health (NIOSH). Represents the maximum concentration from which, in the event of respirator failure, one could escape within 30 minutes without a respirator and without experiencing any escape-impairing or irreversible health effects.

NE = No evidence could be found for the existence of an IDLH (NIOSH Pocket Guide to Chemical Hazards, Pub. No. 90-117, 1990).

C = Ceiling limit value which should not be exceeded at any time.

Ca = Carcinogen.

Table 2-1

**Toxicological and Physical Properties of Chemicals
Former Transformer at Building 3798, Parcel 57Q
Fort McClellan, Calhoun County, Alabama**

(Page 4 of 4)

NA = Not applicable.

? = Unknown.

LEL = Lower explosive limits.

LC₅₀ = Lethal concentration for 50 percent of population tested.

LD₅₀ = Lethal dose for 50 percent of population tested.

NIC = Notice of intended change (ACGIH).

References:

American Conference of Governmental Industrial Hygienists Guide to Occupational Exposure Values, 1998, compiled by the American Conference of Governmental Industrial Hygienists.

Amoore, J. E. Hautula, "Odor as an Aid to Chemical Safety," Journal of Applied Toxicology, 1983.

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Documentation of TLVs and BEIs, American Conference of Governmental Industrial Hygienists, 5th ed., 1986.

Fazzuluri, F. A., Compilation of Odor and Taste Threshold Values Data, American Society for Testing and Materials, 1978.

Gemet, L. J. Van, Compilation of Odor Threshold Values in Air and Water, CIVO, Netherlands, 1977.

Gemet, L. J. Van, Compilation of Odor Threshold Values in Air and Water, Supplement IV, CIVO, Netherlands, 1977.

Lewis, Richard J., Sr., 1992, Sax's Dangerous Properties of Industrial Materials, 8th ed., Van Nostrand Reinhold, New York.

Micromedex Tomes Plus (R) System, 1992, Micromedex, Inc.

National Institute for Occupational Safety and Health Pocket Guide to Chemicals, Pub. 1998, No. 90-117, National Institute for Occupational Safety and Health.

Odor Threshold for Chemicals with Established Occupational Health Standards, American Industrial Hygiene Association, 1989.

Respirator Selection Guide, 3M Occupational Health and Safety Division, 1993.

Verschueren, K., Handbook of Environmental Data on Organic Chemicals, Van Nostrand and Reinhold, 1977.

Warning Properties of Industrial Chemicals—Occupational Health Resource Center, Oregon Lung Association.

Workplace Environmental Exposure Levels, American Industrial Hygiene Association, 1992.

3.0 Personal Protective Equipment

The work activities will begin in the following levels of protection. Also, a completed description of Level D, Modified Level D, and Level C PPE is provided.

Task	Initial Level of PPE
Staging equipment	Level D
Collecting samples	Modified Level D*

*Initial level will be raised to Level C or higher if air monitoring results in the worker's breathing zone are greater than action levels.

Level D. The minimal level of protection that will be required of IT personnel at the site will be Level D. The following equipment will be used for Level D protection:

- Coveralls or work clothing
- Leather work gloves (when necessary)
- Steel-toed safety boots
- Safety glasses
- Hard hat
- Hearing protection (when working near/adjacent to operating equipment).

Modified Level D. The following equipment will be used for Level D-Modified protection:

- Escape/egress air supply pack (where chemical-agents are suspected)
- Permeable Tyvek, Kleenguard, or its equivalent (Saran-coated tyvek where chemical agents are anticipated)
- Latex boot covers
- Nitrile, heavy work, or latex gloves
- Steel-toed safety boots
- Safety glasses
- Hard hat

- Hearing protection (when working near/adjacent to operating equipment).

Note: In addition to modifying Level D PPE, the operator of high-pressure water jetting equipment shall wear metatarsal guards for the legs and feet.

Level C. Level C protection will not be used unless air monitoring data indicate the need for upgrade; however, the equipment shall be readily available on site. The following equipment will be used for Level C protection:

- National Institute of Occupational Safety and Health/Mine Safety and Health Administration-approved full-face, air-purifying respirators equipped with organic vapor/acid gas cartridge in combination with high-efficiency particulate air filter
- Hooded, Saran-coated Tyvek, taped at gloves, boots, and respirator
- Nitrile gloves (outer)
- Latex or lightweight nitrile gloves (inner)
- Neoprene steel-toed boots or polyvinyl chloride overbooties/steel-toed safety boots
- Hard hat
- Hearing protection (when working near/adjacent to operating equipment).

Note: In addition to Level C PPE, the operator of high-pressure water jetting equipment shall wear metatarsal guards for the legs and feet.

4.0 Site Monitoring

The environmental contaminants of concern resulting from the former Transformer at Building 3798 is PCBs. Table 4-1 contains action levels for site monitoring at the Building 3798 Area.

Chemical. Monitoring will be performed by the site safety and health officer during the performance of ground intrusive operations. A calibrated flame ionization detector (i.e., OVA 128 or equivalent) organic vapor analyzer will be utilized to monitor the sampling locations and breathing zones to determine if any organic material may be present that would necessitate upgrading of protection level. Table 4-2 contains the air monitoring frequency and location for site monitoring at the Former Transformer at Building 3798.

Table 4-1

**Action Levels
Former Transformer at Building 3798, Parcel 57Q
Fort McClellan, Calhoun County, Alabama**

(Page 1 of 2)

When in Level C PPE

Analyte	Action Level	Required Action ^a
VOHs	≥ 10 ppm above background in BZ	Stop work, evacuate work area, upgrade to Level B.
Benzene	≥ 5 ppm in BZ	Stop work, evacuate work area, upgrade to Level B.
Particulates	≤ 5.0 mg/m ³ > 5.0 mg/m ³	Normal operations. Stop work, evacuate work area.

When in Level D Modified/D PPE

Analyte	Action Level	Required Action ^b
VOHs	≥ 5 ppm above background in BZ	Stop activities, suspend work activities for 15 to 30 minutes, if readings are sustained then upgrade to Level C PPE.
Benzene	1 ppm in BZ	Upgrade to Level C PPE.
Particulates	≤ 2.5 mg/m ³ > 2.5 mg/m ³	Normal operations. Stop work, evacuate work area.

Table 4-1

**Action Levels
Former Transformer at Building 3798, Parcel 57Q
Fort McClellan, Calhoun County, Alabama**

(Page 2 of 2)

When in Support Zone

Analyte	Action Level	Required Action
VOHs	≥ 1 ppm above background in BZ	Evacuate support zone and re-establish perimeter of exclusion zone.

^a Four instantaneous peaks in any 15-minute period or a sustained reading for 5 minutes in excess of the action level will trigger a response.

^b Contact with the H&S manager must be made prior to continuance of work. The H&S manager may then initiate perimeter/integrated air sampling along with additional engineering controls.

No one is permitted to downgrade levels of PPE without authorization from the H&S manager.

Table 4-2

**Air Monitoring Frequency and Location
Former Transformer at Building 3798, Parcel 57Q
Fort McClellan, Calhoun County, Alabama**

Work Activity	Instrument	Frequency	Location
Staging equipment	OV Monitor	Initially for area	Breathing zone (BZ) of employees
Sampling (groundwater and soil)	OV Monitor PM	Continuously Continuously	BZ of employees Support zone

OV = Organic vapor.

PM = Particulate monitor.

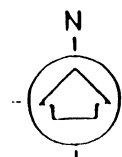
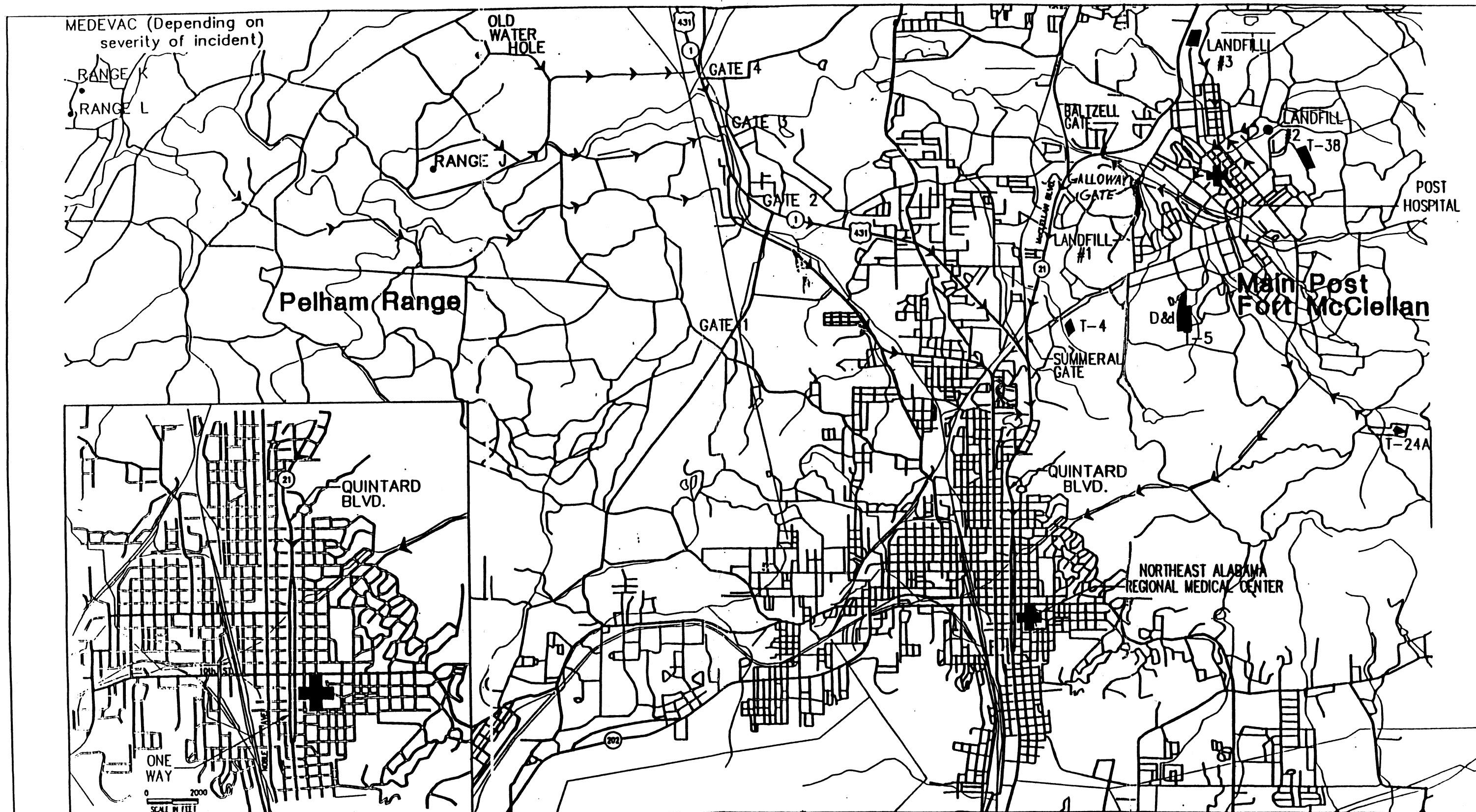
5.0 Activity Hazard Analysis

The attached activity hazard analysis (Table 5-1) is provided for the following activities:

- Setup of equipment and general field activities
- Soil sampling.

All injuries and illnesses must be immediately reported to the site manager or the site safety and health officer, who will then notify off-site personnel and organizations as necessary.

If hospital care must be provided, the victim shall be treated at Northeast Regional Medical Center. Directions to the hospital are provided in Figure 1-1.



0 4000 8000
SCALE IN FEET

FIRE DEPT. PHONE NUMBER:
(205) 848-5936

LEGEND

- U.S. HIGHWAYS
- STATE HIGHWAYS
- HOSPITALS
- RI/FS Sites

U.S. Army Environmental Center
Aberdeen Proving Ground, Maryland

HOSPITAL EMERGENCY ROUTES

Fort McClellan Anniston, Alabama

Flare: 01 Project: 773191

Table 5-1

**Activity Hazard Analysis
Former Transformer at Building 3798, Parcel 57Q
Fort McClellan, Calhoun County, Alabama**

(Page 1 of 11)

Activity	Potential Hazards	Recommended Controls
Staging equipment	Slip, trip, and fall hazards	<ul style="list-style-type: none"> Determine best access route before transporting equipment. Practice good housekeeping; keep work area picked up and clean as feasible. Continually inspect the work area for slip, trip, and fall hazards. Look before you step; ensure safe and secure footing.
	Heavy lifting	<ul style="list-style-type: none"> Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment.
	Falling objects	<ul style="list-style-type: none"> Stay alert and clear of materials suspended overhead; wear hard hat and steel-toed boots.
	Flying debris, dirt, dust, etc.	<ul style="list-style-type: none"> Wear safety glasses/goggles; ensure that eye wash is in proper working condition.
	Pinch points	<ul style="list-style-type: none"> Keep hands, fingers, and feet clear of moving/suspended materials and equipment. Beware of contact points. Stay alert at all times!
	Cuts/bruises	<ul style="list-style-type: none"> Use cotton or leather work gloves for material handling.
	Bees, spiders, and snakes	<ul style="list-style-type: none"> Inspect work area carefully and avoid placing hands and feet into concealed areas.
	Ticks	<ul style="list-style-type: none"> Wear light colored clothing (can see ticks better). Mow vegetated and small brush areas. Wear insect repellant. Wear long sleeves and long pants. Visually check oneself promptly and frequently after exiting the work area.
	Fire	<ul style="list-style-type: none"> Fire extinguishers shall be suitably placed, distinctly marked, readily accessible, and maintained in a fully charged and operable condition.
	Hazard communication	<ul style="list-style-type: none"> Label all containers as to contents and dispose of properly. Ensure Material Safety Data Sheets (MSDS) are available for hazardous chemicals used on site.

Table 5-1

**Activity Hazard Analysis
Former Transformer at Building 3798, Parcel 57Q
Fort McClellan, Calhoun County, Alabama**

(Page 2 of 11)

Activity	Potential Hazards	Recommended Controls
Staging equipment (continued)	Noise	<ul style="list-style-type: none"> • Sound levels above 85 decibels (dBA) mandates hearing protection.
	Lighting	<ul style="list-style-type: none"> • Adequate lighting will be provided to ensure a safe working environment.
	Cold stress	<ul style="list-style-type: none"> • Workers should wear insulated clothing when temperatures drop below 40 degrees Fahrenheit (°F). • Drink warm beverages on breaks. Refrain from drinking caffeinated beverages. • Remove wet clothing promptly. • Take breaks in warm areas. • Reduce work periods as necessary. • Layer work clothing.
	Poison ivy/oak/sumac	<ul style="list-style-type: none"> • Avoid plant areas if possible. • Wear long sleeves and long pants. • Promptly wash clothing that has contacted poisonous plants. • Wash affected areas immediately with soap and water.
	Heat rash	<ul style="list-style-type: none"> • Keep the skin clean and dry. • Change perspiration-soaked clothing, as necessary. • Bathe at end of work shift or day. • Apply powder to affected area.
	Heat cramps	<ul style="list-style-type: none"> • Drink plenty of cool fluids even when not thirsty. • Provide cool fluid for work crews. • Move victim to shaded, cool area.
	Heat exhaustion	<ul style="list-style-type: none"> • Conduct physiological worker monitoring as needed (i.e., heart rate, oral temperature). • Set up work/rest periods. • Use the "buddy system." • Allow workers time to acclimate. • Have ice packs available for use. • Take frequent breaks.
	Heat stroke	<ul style="list-style-type: none"> • Evaluate possibility of night work. • Perform physiological monitoring on workers during breaks. • Wear body cooling devices.

Table 5-1

**Activity Hazard Analysis
Former Transformer at Building 3798, Parcel 57Q
Fort McClellan, Calhoun County, Alabama**

(Page 3 of 11)

Activity	Potential Hazards	Recommended Controls
Staging equipment (continued)	Contact with moving equipment/vehicles	<ul style="list-style-type: none"> • Work area will be barricaded/demarcated. • Equipment will be laid out in an area free of traffic flow. • Barricades shall be used on or around work areas when it is necessary to prevent the inadvertent intrusion of pedestrian traffic. • Barriers shall be used to protect workers from vehicular traffic. • Barriers shall be used to guard excavations adjacent to streets or roadways. • Flagging shall be used for the short term (less than 24 hours) to identify hazards until proper barricades or barriers are provided. • Heavy equipment shall have backup alarms.
	Forklift operations	<ul style="list-style-type: none"> • Use qualified and trained forklift operators. • The operator shall not exceed the load capacity rating for the forklift. • The load capacity shall be clearly visible on the forklift. • Forklift operators shall inform their supervisor of any prescribed medication that they are taking that would impair their judgement.
	Portable electric tools	<ul style="list-style-type: none"> • Portable electric tools that are unsafe due to faulty plugs, damaged cords, or other reasons, shall be tagged (do not use) and removed from service. • Portable electric tools and all cord and plug connected equipment shall be protected by a ground fault circuit interrupter device. • Electrical tools shall be inspected daily prior to use.
	Extension cords	<ul style="list-style-type: none"> • Extension cords that have faulty plugs, damaged insulation, or are unsafe in any way shall be removed from service. • Cords shall be protected from damage from sharp edges, projections, pinch points (doorways), and vehicular traffic. • Cords shall be suspended with a nonconductive support (rope, plastic ties, etc.). • Cords shall be designed for hard duty. • Cords shall be inspected daily.

Table 5-1

**Activity Hazard Analysis
Former Transformer at Building 3798, Parcel 57Q
Fort McClellan, Calhoun County, Alabama**

(Page 4 of 11)

Activity	Potential Hazards	Recommended Controls
Staging equipment (continued)	Lightning strikes	<ul style="list-style-type: none">• Whenever possible, halt activities and take cover.• If outdoors, stay low to the ground.• Limit the body surface area that is in contact with the ground (i.e., kneeling on one knee is better than laying on the ground).• Seek shelter in a building if possible.• Stay away from windows.• If available, crouch under a group of trees instead of one.• Keep all body parts in contact with the ground as close as possible.• Remain 6 feet away from tree trunk if seeking shelter beneath tree(s).• If in a group, keep 6 feet of distance between people.
	Thunderstorms, tornados	<ul style="list-style-type: none">• Listen to radio or TV announcements for pending weather information.• Cease field activities during thunderstorm or tornado warnings.• Seek shelter. Do not try to outrun a tornado.
Surveying	Slip, trip, and fall hazards	<ul style="list-style-type: none">• Site workers will be required to wear hard hat, safety glasses with side shields, work gloves, and steel-toe boots when working in the field.• Provide adequate lighting in all work areas.• Whenever possible, avoid routing cords and hoses across walking pathways.• Flag or cover inconspicuous holes to protect against falls.• Work areas will be kept clean and orderly.• Garbage and trash will be disposed of daily in approved refuse containers.• Tools and accessories will be properly maintained and stored.• Work areas and floors will be kept free of dirt, grease, and slippery materials.
	Traffic accidents	<ul style="list-style-type: none">• Place physical barrier (i.e., barricades, fencing) around work areas regularly occupied by pedestrians.• If working adjacent to roadways, have workers wear fluorescent orange vests.• Use warning signs or lights to alert oncoming traffic.• Assign flag person(s) if necessary to direct local traffic.• Set up temporary parking locations outside the immediate work area.• Motor vehicle operators shall obey all posted traffic signs, signals, and speed limits.• Pedestrians have the right-of-way.• Wear seat belts when vehicles are in motion.
	Wildlife hazards	<ul style="list-style-type: none">• Workers should be cautious when driving through the site in order to avoid encounters with passing animals.

Table 5-1

**Activity Hazard Analysis
Former Transformer at Building 3798, Parcel 57Q
Fort McClellan, Calhoun County, Alabama**

(Page 5 of 11)

Activity	Potential Hazards	Recommended Controls
Surveying (continued)	Biological hazards	<ul style="list-style-type: none"> Walking through overgrown grass areas, watch for snakes (rattlesnakes, moccasins, copperheads).
	Ticks	<ul style="list-style-type: none"> Wear light colored clothing (can see ticks better). Mow vegetated and small brush areas. Wear insect repellent. Wear long sleeves and long pants. Visually check oneself promptly and frequently after exiting the work area.
	Poison Ivy/oak/sumac	<ul style="list-style-type: none"> Avoid plant areas if possible. Wear long sleeves and long pants. Promptly wash clothing that has contacted poisonous plants. Wash affected areas immediately with soap and water.
Soil boring and surface/subsurface sampling	Cross-contamination and contact with potentially contaminated materials	<ul style="list-style-type: none"> Stop immediately at any sign of obstruction. Sampling technicians will wear proper protective clothing and equipment to safeguard against potential contamination. Only essential personnel will be in the work area. Real-time air monitoring will take place before and during sampling activities. All personnel will follow good hygiene practices. Proper decontamination procedures will be followed. All liquids and materials used for decontamination will be contained and disposed of in accordance with federal, state, and local regulations.
	Cut hazards	<ul style="list-style-type: none"> Use care when handling glassware. Wear adequate hand protection.
	Slip, trip, and fall hazards	<ul style="list-style-type: none"> Site workers will be required to wear hard hat, safety glasses with side shields, work gloves, and steel-toe/shank boots when working in the field. Whenever possible, avoid routing cords and hoses across walking pathways. Flag or cover inconspicuous holes to protect against falls.
	Bees, spiders, and snakes	<ul style="list-style-type: none"> Workers shall inspect the work area carefully and avoid placing hands and feet into concealed areas. Evaluate need for sensitive workers to have prescribed antibiotic or medicine to combat onset of symptoms.

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Activity	Potential Hazards	Recommended Controls
Soil boring and surface/subsurface sampling (continued)	Poison ivy/oak/sumac	<ul style="list-style-type: none"> • Avoid plant areas if possible. • Wear long sleeves and long pants. • Promptly wash clothing that has contacted poisonous plants. • Wash affected areas immediately with soap and water.
	Cold stress	<ul style="list-style-type: none"> • Workers should wear insulated clothing when temperatures drop below 40°F. • Drink warm beverages on breaks. Refrain from drinking caffeinated beverages. • Remove wet clothing promptly. • Take breaks in warm areas. • Reduce work periods as necessary. • Layer work clothing.
	Access/egress hazards	<ul style="list-style-type: none"> • Use qualified and trained bushhog operator. • Keep employees out of the bushhog work area. • Utilize good housekeeping practices. • Keep aiseways, pathways, and work areas free of obstruction. • Clean ice or snow off of walkways or work stations. • Use appropriate footwear for the task assigned.
	Heat rash	<ul style="list-style-type: none"> • Keep the skin clean and dry. • Change perspiration-soaked clothing, as necessary. • Bathe at end of work shift or day. • Apply powder to affected area.
	Heat cramps	<ul style="list-style-type: none"> • Drink plenty of cool fluids even when not thirsty. • Provide cool fluid for work crews. • Move victim to shaded, cool area.
	Heat exhaustion	<ul style="list-style-type: none"> • Conduct physiological worker monitoring as needed (i.e., heart rate, oral temperature). • Set up work/rest periods. • Use the buddy system. • Allow workers time to acclimate. • Have ice packs available for use. • Take frequent breaks.

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Activity	Potential Hazards	Recommended Controls
Soil boring and surface/subsurface sampling (continued)	Heat stroke	<ul style="list-style-type: none"> • Evaluate possibility of night work. • Perform physiological monitoring on workers during breaks. • Wear body cooling devices.
	Lightning strikes	<ul style="list-style-type: none"> • Whenever possible, halt activities and take cover. • If outdoors, stay low to the ground. • Limit the body surface area that is in contact with the ground (i.e., kneeling on one knee is better than laying on the ground). • Seek shelter in a building if possible. • Stay away from windows. • If available, crouch under a group of trees instead of one single tree. • Keep all body parts in contact with the ground as close as possible. • If in a group, keep 6 feet of distance between people.
Moving and shipping collected samples	Heavy lifting	<ul style="list-style-type: none"> • Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment; size-up the lift.
	Pinch points	<ul style="list-style-type: none"> • Keep hands, fingers, and feet clear of moving/suspended materials and equipment. • Beware of contact points. • Stay alert at all times!
	Cut hazards	<ul style="list-style-type: none"> • Wear adequate hand protection. Use care when handling glassware.
	Hazard communication	<ul style="list-style-type: none"> • Label all containers as to contents and associated hazards.
	Heavy lifting	<ul style="list-style-type: none"> • Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment; size-up the lift.

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Activity	Potential Hazards	Recommended Controls
Material storage	Flammable and combustible liquids	<ul style="list-style-type: none"> • Store in NO SMOKING AREA. • Fire extinguisher readily available. • Transfer only when properly grounded and bonded.
Disposal of investigation-derived waste (IDW) (Forklift Operation)	Personnel injury, property damage, and/or equipment damage	<ul style="list-style-type: none"> • Use qualified and trained forklift operators. • The operator shall not exceed the load capacity rating for the forklift. • The load capacity shall be clearly visible on the forklift. • Forklift operators shall inform their supervisor of any prescribed medication that they are taking that would impair their judgement.
	Cross-contamination and contact with potentially contaminated materials	<ul style="list-style-type: none"> • Stop immediately at any sign of obstruction. • Sampling technicians will wear proper protective clothing and equipment to safeguard against potential contamination. • Only essential personnel will be in the work area. • Real-time air monitoring will take place before and during sampling activities. • All personnel will follow good hygiene practices. • Proper decontamination procedures will be followed. • All liquids and materials used for decontamination will be contained and disposed of in accordance with federal, state, and local regulations.
	Cut hazards	<ul style="list-style-type: none"> • Use care when handling glassware. • Wear adequate hand protection.
High-pressure water jetting operations	Heavy lifting	<ul style="list-style-type: none"> • Use proper lifting techniques. • Lifts greater than 60 pounds require assistance or mechanical equipment; size-up the lift.
	Slip, trip, and fall hazards	<ul style="list-style-type: none"> • Good housekeeping shall be implemented. • The work area shall be kept clean as feasible. • Inspect the work area for slip, trip, and fall hazards.

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Activity	Potential Hazards	Recommended Controls
High-pressure water jetting operations (continued)	Fueling	<ul style="list-style-type: none"> Only approved safety cans shall be used to store fuel. Do not refuel equipment while it is operating. Fire extinguishers shall be suitably placed, distinctly marked, readily accessible, and maintained in a fully charged and operable condition.
	Faulty or damaged equipment	<ul style="list-style-type: none"> Equipment shall be inspected before being placed into service and at the beginning of each shift. Preventive maintenance procedures recommended by the manufacturer shall be followed. A lockout/tagout procedure shall be used for equipment found to be faulty or undergoing maintenance.
	High-pressure water	<ul style="list-style-type: none"> Jetting gun operator must wear appropriate PPE including hard hat, impact-resistant safety glasses with side shields, water-resistant clothing, metatarsal guards for feet and legs, and hearing protection (if appropriate). One standby person shall be available within the vicinity of the pump during jetting operation. The work area shall be isolated and adequate barriers will be used to warn other site personnel.
	Unqualified operators	<ul style="list-style-type: none"> Only qualified and trained personnel are permitted to operate machinery and mechanized equipment associated with water jet cutting and cleaning.
	Out of control equipment	<ul style="list-style-type: none"> No machinery or equipment is permitted to run unattended. Machinery or equipment will not be operated in a manner that will endanger persons or property nor will the safe operating speeds or loads be exceeded.
	Noise	<ul style="list-style-type: none"> Sound levels above 85 dBA mandates hearing protection by nearby site personnel.
	Activation during repairs	<ul style="list-style-type: none"> All machinery or equipment will be shut down and positive means taken to prevent its operation while repairs or manual lubrications are being done.
	Pinch points	<ul style="list-style-type: none"> Keep feet and hands clear of moving/suspended materials and equipment. Stay alert and clear of materials suspended .
	Falling objects	<ul style="list-style-type: none"> Hard hats are required by site personnel. Stay alert and clear of material suspended overhead.
	Flying debris	<ul style="list-style-type: none"> Impact-resistant safety glasses with side shields are required.

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Activity	Potential Hazards	Recommended Controls
High-pressure water jetting operations (continued)	Contact with potentially contaminated materials	<ul style="list-style-type: none"> All site personnel will wear the appropriate PPE.
Hydropunch sampling	Faulty or damaged equipment being utilized to perform work	<ul style="list-style-type: none"> All machinery or mechanized equipment will be inspected by a competent mechanic and certified to be in safe operating condition. Equipment will be inspected before use and at the beginning of each shift. Faulty/unsafe equipment will be tagged and if possible locked out. Drill rigs shall be equipped with reverse signal alarm, backup warning lights, or the vehicle is backed up only when an observer signals it is safe to do so.
	Uneven terrain, poor ground support, inadequate clearances, contact with utilities	<ul style="list-style-type: none"> Inspections or determinations of road conditions and structures shall be made in advance to ensure that clearances and load capacities are safe for the passage or placing of any machinery or equipment. All mobile equipment and areas in which they are operated shall be adequately illuminated. Whenever the equipment is parked, the parking brake shall be set. Equipment parked on inclines will have the wheels chocked. Inspect brakes and tire pressure on drill rig before staging for work. Obtain trenching/drilling permit prior to operation.
	Inexperienced operator	<ul style="list-style-type: none"> Machinery and mechanized equipment shall be operated only by designated personnel. Heavy equipment operators shall inform their supervisor(s) of any prescribed medication that they are taking that would impair their judgement.
	Jacks/outriggers	<ul style="list-style-type: none"> Ensure proper footing and cribbing.
	Falling objects	<ul style="list-style-type: none"> Remove unsecured tools and materials before raising or lowering the derrick. Stay alert and clear of materials suspended overhead.
	Pinch points	<ul style="list-style-type: none"> Keep feet and hands clear of moving/suspended materials and equipment. Stay alert at all times!
	Fire	<ul style="list-style-type: none"> Mechanized equipment shall be shut down prior to and during fueling operations. Have fire extinguishers inspected and readily available.

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Activity	Potential Hazards	Recommended Controls
Hydropunch sampling (continued)	Fall hazards	<ul style="list-style-type: none">Personnel are not allowed to work off of machinery or use them as ladders.Use fall protection when working above 6 feet.
	Noise	<ul style="list-style-type: none">Hearing protection is mandatory above 85 dBA.
	Contact with rotating or reciprocating machine part	<ul style="list-style-type: none">Use machine guards; use long-handled shovels to remove auger cuttings.Safe lockout procedures for maintenance work.
	Heavy lifting	<ul style="list-style-type: none">Use proper lifting techniques. Lifts greater than 60 lbs. require assistance or mechanical equipment; size-up the lift.
	Slip, trip, and fall hazards	<ul style="list-style-type: none">Practice good housekeeping; keep work area picked up and clean as feasible.Continually inspect the work area for slip, trip, and fall hazards.
	Contact with potentially contaminated materials	<ul style="list-style-type: none">Real time air monitoring will take place. If necessary, proper personal protective clothing and equipment will be utilized.